REMARKS

Claims 2-12 have been cancelled. Claims 13-28 have been added and constitute the claims currently pending in the present application.

Applicants respectfully request the Examiner to prosecute the above-identified application at his or her earliest possible convenience and requests entry of the above Amendment prior to calculation of the filing fee.

If there should be any communication that the Examiner would like to make with the attorney of record in this case, he or she is requested to contact the undersigned at (248) 641-1600 to discuss the application.

Respectfully submitted,

Dated: SEPT 23, 2005

By: W.R. Duke Taylor
Reg. No. 31,306

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

WRDT/lkj

Reel tines

Description

The invention relates to attaching a reel tine ~~for the attachment~~ onto a carrier tube of a reel~~,~~. The carrier tube ~~which~~ is ~~crosswise~~ drilled through crosswise and, respectively, has in the area of two attachment bores, arranged on one bore axis and extending through the wall of the carrier tube, sink portions directed to the inside. The reel tine is retain~~able~~ed by a screw on the carrier tube.

BACKGROUND OF THE INVENTION

The reel of a harvesting machine ~~comprises~~ generally includes several carrier tubes. The carrier tubes are radially~~,~~ from ~~a~~ ~~distanced radially to a~~ central tube and circumferentially distributed around ~~this and~~and the central tube. The carrier tubes ~~which~~ are supported by corresponding bearing arms~~,~~ ~~connected to the central tube~~. The carrier tubes ~~themselves~~ are pivotably supported on the bearing arms. ~~As~~ Since the width of the cutting table of a harvesting machine is especially large in modern machines, the reels and carrier tubes are also ~~formed~~ correspondingly long. ~~and also the corresponding carrier tubes.~~ The carrier tubes carry reel tines~~,~~ which are ~~arranged~~ distributedly arranged along ~~its~~the carrier tube's length. For example, on a six meter long carrier tube, 40 or more tines are generally attached to the carrier tube. ~~In~~ Thus, a reel with six carrier tubes~~, therefore,~~ 240 tines are provided.

Preferably, two basic types of reel tines are used. Reel tines made from steel are preferred ~~for~~to harvest~~ing~~ goods, which are difficult to collect ~~and to be~~ transport~~ed in~~ to the cutting table of the cutting section. For example, these tines are used ~~for~~on cereals and especially ~~for~~ on cereals lying on the ground or in ~~the~~ grass harvesting.

For other harvesting goods, for example beans and other leguminous fruit, reel tines made from plastic materials are ~~preferably~~preferred ~~used~~. The above named harvesting goods ~~have to~~ must be cut close to the ground~~,~~ since ~~as~~ the first shoots, which are on stalks, already grow close to the ground ~~on stalks~~. In ~~the~~ modern machinery,

which include very wide cutting tables ~~of~~on the harvesting devices~~,~~, for example, combine harvesters, in order to harvest ~~for~~ these harvesting goods very flexible cutter bars are used. The cutter bars~~, which are guided~~ in the operating position are guided in contact with the ground in front of the cutting table, ~~and~~ which cuts the harvesting good. On ~~an~~ uneven ground, these flexible cutter bars carry out at least partially a vertical movement relative to the cutting table. In this case, when lifting the cutter bar, it happens, that one or a multitude of reel tines get between the reciprocating blades of the cutter bar. With reel tines made from plastic material a shearing-off of the tip of the same happens, however, no negative influence onto the blade nor the cutter bar drive follows.

Generally in carrier ~~tube~~tubes, cross-wise extending attachment bores are punched ~~in~~,into the carrier tubes. ~~wherein the~~The deformations around the bores are in the form of ~~the~~ sink portions. ~~are produced.~~ When the bores are produced from diametrical sides, the carrier tube is provided with two funnel-like sink portions in opposite ~~directed, funnel-like sink portions~~directions. Different reel tines, made from plastic materials, are known~~,~~ which can be attached to such carrier tubes.

~~US 48 82 899~~ U.S. Patent No. 4,882,899 discloses a reel tine manufactured from plastic material. The tine~~, which~~ has a clip-like portion which encloses~~, enclosing~~ the carrier tube. The ~~and wherein the~~ two opposed attachment portions are clamped against each other by a screw. Furthermore, a projection is formed on the bore portion enclosed by the clip portion. The projection ~~a projection is formed, which~~ engages ~~in~~ the recess or ~~a~~ sink portion of the carrier tube. Furthermore, ~~on the reel tines~~ lateral wing-like profiled strips are formed on the reel tines. One of the strips~~,~~ ~~of which one~~ has at its free end face a recess and the other one a projection. During ~~a~~ stronger radial loading, the enclosing strip is deformed. The~~, the~~ pin-like lug leaves the bore and a rotational displacement is produced relative to the carrier tube. Thus,~~,~~ ~~so that~~ the reel tine cannot fulfil its function. The formed wing-like ~~formed on~~ profiled strips extend over half the distance to a neighbouring reel tine. The profile strips ~~and~~ engage ~~there~~ with the opposite directed profiled strip of the neighbouring tine by ~~a~~means ~~of the~~ tongue and groove connection. This connection is, however, ~~insta-~~

~~ble~~unstable. Thus, ~~so that then,~~ when a reel tine is displaced on the carrier tube due to overloading, ~~also~~ the tongue and groove connection is also detached. Furthermore, in this construction the distances of the reel tines on the carrier tube have to ~~correspond~~ correctly correspond to each other. A later adaptation is not possible, when replacing ~~these~~the tines.

~~US 61 99 358~~ U.S. Patent No. 6,199,358 relates to a reel tine made from plastic material~~,~~. The tine ~~which~~ has an attachment portion with a recess, which forms an abutment face to a portion on the outer face of the carrier tube. The carrier tube has ~~the~~ two attachment bores~~,~~ arranged on one bore axis. D~~, which differentifferent tofrom~~ the common design, the bores are not part of the sink portions. A pin projection is provided ~~I~~nin the area of the recess of the attachment portion of the reel tine ~~a pin projection is provided, in~~ which includes a bore~~ is provided~~. The reel tine projects with this pin projection through the attachment bore into the inside of the carrier tube. Starting from the opposite attachment bore, a screw with a countersunk head is screwed ~~in~~into and retains ~~by this~~ the reel tine on the carrier tube. The raking-in portion is ~~formed~~ rod-like and bent and has a front contact face. It is ~~formed~~ tapered widthwise from an approximately centre portion in the direction ~~to~~of its free end. A~~O~~f disadvantage is~~,~~ that the projection, made from plastic material, has to absorb ~~the~~ full loading in connection with the screw. Accordingly, detaching often results during loading when~~When being loaded~~ a strong tensile force acts onto the screw~~, so that a detaching often results~~.

Finally, U.S. Patent No. 6,324,823 B1~~US 63 24 823 B1~~ describes a reel tine made from plastic material. The tine~~, which~~ can be attached on a carrier tube provided with diametrical sink portions. It has an elongated attachment portion~~, which is elongated,~~ wherein ~~on the elongations~~ cone-like formed-on thickenings are provided to~~, filling~~ fill the sink portions of the carrier tube. A screw is passed through this thickenings. The ~~and the~~ carrier tube and ~~a~~ clamping of the carrier tube~~same~~ is achieved by a nut screwed onto the head screw. The thickenings also engage ~~also~~ in the diametrical attachment bores. A~~O~~f disadvantage is ~~especially,~~ that the use of a head screw with a nut leads to an enlarged ~~the fact, that the~~ diameter is enlargered. Thus ~~and, thus~~,

the projecting portion leads to ~~the fact, that~~ easily winding harvesting goods that can ~~can~~ be entangled ~~thereon.~~on the screw

SUMMARY OF THE INVENTION

~~Object of~~ According to the invention ~~is~~, ~~to provide~~ a reel tine~~,~~ is provided with a ~~which~~ raking-in portion and attachment portions which are integrally or unitarily formed from plastic material. The tines ~~and which~~ can be securely positioned and attached ~~on~~onto ~~the~~ a carrier tube. Thus, ~~so that also~~ during strong loading no displacement is~~can be~~ produced on the carrier tube or is~~that~~ the screw connection ~~even detaches~~ detached. Furthermore, the tines~~it should be~~ ensure~~d,~~ that the harvesting good does not get entangled. The reel tine ~~also~~ should also, without necessitating a form change on the attachment portion and raking-in portion, be useable on tubes having different sink portions or ~~also~~ on tubes, which have no sink portions.

~~This object is solved according to the~~ The invention has~~by~~ a reel tine ~~for~~ attach~~med~~ent by a screw onto ~~on~~ a carrier tube of a reel. The carrier tube~~, which~~ is drilled through cross-wise to form ~~forming~~ two attachment bores. Especially, ~~and especially having, respectively,~~ in the area of the two attachment bores which are arranged on one bore axis and extend~~ing~~ through the wall of a carrier tube, two sink portions are directed inwards~~, by means of a screw, comprising~~.

A ~~a~~ raking-in portion formed in a ~~,~~
~~formed~~ rod-like configuration has ~~and~~
~~having~~ a front contact face~~,~~. An
~~a n~~ attachment portion~~,~~
~~which~~ is ~~formed~~ integrally or unitarily formed with the raking-in portion from a plastic material. The attachment portion has~~,~~
~~having~~ a recess with an abutment face for the abutment on the carrier tube. A ~~and from which abutment face a~~ first bore portion starts from the abutment face. A~~, from which again a~~ second bore portion to~~for receiving~~receive the threaded shaft of the screw starts from the first bore portion. A~~, and~~
~~a~~ connection sleeve has~~,~~

~~having~~ a first sleeve portion~~,~~ which is accommodated in the first bore portion. The sleeve has~~,~~

~~having~~ a second sleeve portion~~,~~ insertable into an attachment bore.

~~Of advantage in this design is, that via the~~ The connection sleeve enables tines to be adapted to ~~an adaptation to~~ differently formed carrier tubes ~~can be achieved,~~ without the need ~~having~~ to change the connection portion which is unitarily formed ~~integrally~~ with the raking-in portion. Thus, the connection sleeve can be adapted to the different bore forms of the attachment bores in the carrier tube. Furthermore, ~~it is advantageous, that this~~the connection sleeve can be made from a hard wearing material which is also less sensitive to shear stress. ~~By means of the~~The depth of the first bore portion in the attachment portion achieves~~,~~ a sufficiently advantageous connection to the connection sleeve ~~can be achieved~~. Furthermore, the abutment face of the recess of the attachment portion can ~~also~~ be formed such~~,~~ that an adaptation or attachment, respectively, to carrier tubes ~~having~~with different diameters ~~are~~is possible.

In ~~case~~cases where the ~~that~~ carrier tubes have~~with~~ sink portions ~~are used~~, it is sensible to have a~~, that the~~ connection sleeve ~~has~~with a radially projecting collar separating the first sleeve portion from the second sleeve portion ~~and projects radially therefrom~~. This collar can be, for example, used to fill-out the sink portion. ~~Thus, it is obvious, that for reel tines according~~According to the invention, an adaption to the different carrier tube shapes can be achieved in an identical design of the plastic ~~integrally formed~~ raking-in portion ~~made from plastic material~~ with the connection portion. Thus, ~~an adaptation to the different carrier tube shapes can be achieved such, that~~ only a connection sleeve adapted to the respective carrier tube is used. Thus, the~~The~~ tools~~,~~ necessary, especially for the manufacture of the plastic material component, need~~can, therefore,~~ only be of~~designed for~~ one single ~~type~~design. This~~, whereby the tool costs are~~ significantly ~~reduced~~reduces the tool costs.

~~To be able~~ In order to achieve the necessary ~~form~~ rigidity in the area of the raking-in portion, at least one reinforcement rib is provided on ~~it is further provided, that~~ the raking-in portion ~~has~~ on its face facing away from the front contact face. ~~at least one~~

~~reinforcement rib, which~~The at least one reinforcement rib starts from the attachment portion and ends in front of a free end of the raking-in portion. An especially advantageous design is achieved~~,~~ when two ribs are provided. The ribs~~, which~~ approach each other~~,~~ starting from the attachment portion in a direction towards the free end, and, for example, merge. Thus, the ribs have~~,~~ in the area of the attachment portion~~,~~ the largest distance. Preferably, ~~it is provided, that~~ the height of the ribs decrease in the direction to the free end of the raking-in portion ~~decreases~~. Also the width of the contact face of the raking-in portion ~~can decrease~~decreases towards the free end.

~~An~~In an advantageous embodiment~~,~~ ~~provides, that~~ the ~~integral~~ area including~~consisting of~~ the connection portion and the raking-in portion is made from an elastic plastic material. Preferably ~~it is provided~~, ~~that~~ the reel tine is made from a polyamide material (PA), a polyoxymethylene material (POM) or a polypropylene material (PP). Preferably, the connection sleeve is made from metal, especially steel, or a tough plastic material. In ~~case~~cases where~~, that~~ additional profiled strips are ~~should be~~ used, ~~it is provided, that~~ the attachment portion has grooves at its two side faces ~~grooves for the accommodation~~to accommodate ~~of~~ the ends of a profiled strip. In ~~case~~cases where~~, that namely~~ the pitch of the attachment bore on the carrier tube is not exactly maintained, it is possible~~,~~ to adapt the profiled strip ~~still~~ during the exchange or in the working environment by ~~means of~~ cutting it into lengths from a larger profiled strip ~~to~~into the given conditions.

This is also possible~~,~~ when a laterally projecting profiled strip is formed on the attachment portion at one side ~~laterally projecting~~ and the attachment portion has a groove on the side face facing away from the same. The~~, a~~ groove ~~for the accommodation~~accommodates ~~of~~ the profiled strip of a neighbouring reel tine. ~~When, hereby, always~~Accordingly, when a sufficient large profiled strip length is provided, an adaptation is still possible during an exchange in the working environment.

The invention is described in more detail by means of the embodiments shown schematically in the drawing.

Further areas of applicability of the present invention will become apparent from the detailed description provided hereinafter. It should be understood that the detailed description and specific examples, while indicating the preferred embodiment of the invention, are intended for purposes of illustration only and are not intended to limit the scope of the invention.

~~It shows~~

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an ~~a first embodiment of a reel tine according to the invention in a~~ exploded side view, together with the cross-wise cut carrier tube and the screw in accordance with a first embodiment of a reel tine according to the present invention~~for the attachment,~~.

Fig. 2 is a cross-sectional view of the reel tine of Fig. 1 mounted on the carrier tube~~with its attachment portion in a cross-sectional view,~~.

Fig. 3 is a rear elevation view ~~onto~~of the reel tine of Fig. 2 in the direction of the arrow A of Fig. 2~~,~~.

Fig. 4 is a rear elevation view of ~~a~~another different embodiment of a reel tine~~with an integrally formed-on profiled strip and with the inserted connection sleeve,~~.

Fig. 5 is a side elevation view of the reel tine of Fig. 4 in the direction of the arrow B of Fig. 4~~with a formed-in groove for the profiled strip,~~.

Fig. 6 is a rear elevation view of two reel tines attached ~~distanced to each other~~ on a carrier tube with a~~the~~ connection strip,

Fig. 7 is a cross-sectional view ~~VII-VII~~ of Fig. 6 along line VII-VII thereof~~,~~.

Fig. 8 is a rear elevation view of a further embodiment of a reel tine with two reinforcement ribs~~in a rear view and~~.

Fig. 9 is a cross-sectional view ~~IX-IX~~ of Fig. 8 along line IX-IX thereof..

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

In Fig. 1, a first embodiment of a reel tine 1 is shown in an exploded view ~~in~~with reference to the attachment ~~on~~onto a rear carrier tube 2 ~~of a reel~~. ~~For the attachment, the~~The carrier tube 2 has a first attachment bore 3 and a second attachment bore 4 arranged on the same bore axis 5. ~~These~~The bores 3, 4 are arranged diametrically opposite~~opposed~~ and are part of a first sink portion 6 ~~or~~and a second sink portion 7, respectively. ~~These~~The sink portions 6, 7 are off-set relative to the outer face 8 of the carrier tube 2 inside towards the rotational axis 9 of the carrier tub 2.

~~-~~The reel tine 1 ~~comprises~~includes a raking-in portion 10 with a~~the~~ contact face 11 arranged ~~in~~at the front of the raking-in portion 10 in a rotational direction of the carrier tube 2. An ~~and the~~ attachment portion 12 is formed unitarily or integrally ~~there~~with the raking-in portion. The reel tine 1 has a free end 14 remote from the attachment portion 12. D ~~and~~ diametrically to the free end 14 in the attachment portion 12, a recess with ~~the~~an abutment face 13 is formed. The abutment face 13 abuts ~~for abutment on the~~the outer face 8 of the carrier tube 2. A first bore portion 16 starts from ~~From~~ the abutment face 13 ~~contact face 11,~~ in a direction towards the raking-in portion 10. The first bore portion 16 has a ~~starts a first bore portion 16, which is~~ larger ~~in~~ diameter than ~~, from which again~~ a second bore portion 17 which starts from the first.

~~Furthermore, in Fig. 1 a~~A connection sleeve 18 has ~~is visible, having~~ a through bore 19. The connection sleeve 18 has a first sleeve portion 20~~,~~ which is form fit ~~formed fittingly~~ to the first bore portion 16 in the attachment portion 12. The connection sleeve 18 ~~It~~ has~~, further,~~ a second sleeve portion 21 which form fits~~, formed fittingly~~ to the ~~first~~second attachment bore ~~7~~4. The sleeve portion 21~~, i.e.~~ passes ~~there~~through the bore 4. The connection sleeve 18 has~~, further,~~ a collar 22 that~~,~~ separates ~~separating~~ the first sleeve portion 20 from the second sleeve portion 21. The collar 22 ~~and~~ project~~ings~~ radially with respect to~~concerning~~ the axis 23 of the through bore 19

~~from these~~. The collar 22 ~~fills~~ at least partially fills the sink portion 7, as seen in Fig. 2. In the case, ~~that a~~the carrier tube is provided without a sink portion, the collar can ~~also~~ be omitted.

~~The~~A screw 24 serves to additionally ~~for the~~ retain~~ment of~~ the reel tine 1 on the carrier tube 2. The screw 24~~, which~~ has a head 25, formed as a countersunk head, and a threaded shaft 26. The shaft 26 is~~, which can be~~ screwed into the second bore portion 17. The connection sleeve 18 is made from an essentially harder material, such as metal, than the tine 1. The connecting sleeve 18 ~~having~~ also has better shearing characteristics than the tine 1. The connecting sleeve 18~~, for example from metal, than the tine 1 and~~ absorbs the shearing forces during the transmission of ~~the~~ forces acting on the raking-in portion 10 and passes these forces on ~~in~~to the carrier tube 2.

Figures 2 and 3 show the reel tine 1 arranged~~in the arrangement~~ on ~~to~~ the carrier tube 2~~, i.e.~~ in a~~the~~ mounted condition. The reel tine 1~~, wherein the same~~ is retained by ~~means of~~ the screw 24 on the carrier tube 2. A~~Furthermore, the~~ rib 15, for the reinforcement, is ~~visible~~on the tine 1. ~~This~~The rib 16 starts from ~~on~~ the attachment portion 12 and ends in front of the free end 14. The rib 15 is unitarily formed with the raking-in portion and attachment portion 12 from the same plastic material.

Figures 4 to 6 show an embodiment of a reel tine 101, which corresponds essentially to the retainment of the embodiment of Figures 1 to 3 on the carrier tube. Accordingly, for~~, so that concerning~~ the description of these parts, ~~it is~~ refer~~red~~ to the description of Figures 1 to 3. Components or portions corresponding to those of the embodiment of Figures 1 to 3, are provided with reference numerals, which compared to those of Figures 1 to 3 are increased by the numerical value 100. Only~~Following, however, only~~ the differences are described below.

Different ~~to~~from the embodiment of Figures 1 to 3, is~~on~~ the attachment~~ connection~~ portion 112. A ~~a~~ profiled strip 27 is unitarily formed with the attachment portion 112. The strip 27 ~~on, which~~ extends laterally away from the attachment~~connection~~ portion

112. The side face of the attachment~~connection~~ portion 112 facing away from the profiled strip 27 has a groove 28. The~~, which~~ cross-section of the groove 28 is adapted to receive the cross section ~~that~~ of the profiled strip 27. The~~When comparing Figures 5 and 7, the identity of the~~ cross-sections are~~is~~ visible in Figures 5 and 7.

In Fig. 6 the arrangement of two reel tines 101 relative to the carrier tube 2 is shown~~,~~. Here,~~wherein it is visible, that~~ the profiled strip 27 is connected in the drawing at its free ends to the left reel tine 101 by engaging~~engages~~ in the grooves 28. The grooves 28 are~~, arranged~~ on the right and left hand sides of the shown reel tine 101~~,~~ ~~with its free end~~. Accordingly, the profiled strip 27 can be a separate part coupled with the grooves 28 of the attachment portions 112 or the strip 27 can be unitarily formed with the attachment portion as shown in Figure 4.

Figures 8 and 9 ~~show~~ illustrate a further embodiment of a reel tine according to the invention~~,~~. The~~ wherein the~~ components serving for the attachment of the reel tine 201 and portions compared to those of the embodiment of Figure 1 are provided with reference numerals~~,~~ which are increased by the numerical value 200~~ compared to those~~. The attachment of the reel tine 201~~, and especially~~ the design of the attachment portion 212~~,~~ and ~~of~~ the connection sleeve 218 correspond to the embodiment of Fig. 1. Thus, ~~so that~~ for ~~the~~their description~~, of the same it is~~ refer~~red~~ to the description of Fig. 1.

Figures 8 and 9 serve only for the explanation of a further reinforcement of the reel tine 201 in the area of the raking-in portion 210. The two ribs 215 start from the attachment portion 212 and extend towards the tip 214. The ribs 215 are spaced apart from one another, at the greatest distance between the rib 215, at the attachment portion 212. The ribs 215 taper toward one another and eventually merge with one another. ~~by means of two~~Two ribs 215 are on the tines 201~~, which, starting from the attachment portion 212, at which they are further away from each other, are guided to a portion, at which they are united.~~ Thus, a higher rigidity is achieved. The cross-sections of these ribs 215 are visible in Fig. 9.

The description of the invention is merely exemplary in nature and, thus, variations that do not depart from the gist of the invention are intended to be within the scope of the invention. Such variations are not to be regarded as a departure from the spirit and scope of the invention.

~~Reference numerals list~~

~~1, 101, 201 reel tines~~
~~2 carrier tube~~
~~3 first attachment bore~~
~~4 second attachment bore~~
~~5 bore axis~~
~~6 first sink portion~~
~~7 second sink portion~~
~~8 outer face~~
~~9 rotational axis~~
~~10, 110, 210 raking-in portion~~
~~11, 111 contact face~~
~~12, 112, 212 attachment portion~~
~~13, 113 abutment face~~
~~14, 114, 214 free end~~
~~15, 115, 215 rib~~
~~16 first bore portion~~
~~17 second bore portion~~
~~18, 118, 218 connection sleeve~~
~~19 through bore~~
~~20 first sleeve portion~~
~~21 second sleeve portion~~
~~22 collar~~
~~23 axis~~
~~24 screw~~
~~25 head~~
~~26 threaded shaft~~
~~27 profiled strip~~
~~28 groove~~

Claims

2. Reel tine ~~(1, 101, 201)~~ for ~~the~~ attach~~ment~~ing to ~~on~~ a carrier tube ~~(2)~~ of a reel, said carrier tube includes a ~~which is drilled through~~ cross-wise bore forming two attachment bores ~~(3, 4)~~ and ~~especially having, respectively~~, in the area of the two attachment bores, ~~(3, 4)~~ arranged on one bore axis ~~(5)~~ and extending through the wall of a carrier tube ~~(2)~~, the tine to the carrier tube has two sink portions ~~(6, 7)~~ directed inwards, ~~by means of~~ a screw ~~(24)~~, connects the tine to the carrier tube, the reel tine comprising

~~———————~~

-a rod-like raking-in portion ~~(10, 110, 210),~~ with

~~———formed rod-like and~~

~~———having~~ a front contact face;

~~———————(11, 111),~~

-an attachment portion ~~(12, 112, 212),~~ unitarily

~~———which is~~ formed integrally with the raking-in portion ~~(10, 110, 210)~~ from plastic material, said attachment portion

- having a recess and~~with~~ an abutment face ~~(13, 113)~~ for ~~the abutment~~abutting ~~on~~ the carrier tube, said ~~(2) and~~

~~———from which~~ abutment face ~~(13, 113)~~ including a first bore portion starting from said abutment face ~~(16) starts~~, ~~from which again~~ a second bore portion ~~(17)~~ for receiving the threaded shaft ~~(26)~~ of the screw ~~(24) starts~~extends from the first bore portion;~~,~~ and

~~———————~~

-a connection sleeve ~~(18, 118, 218),~~

- having a first sleeve portion, said first sleeve portion ~~(20), which is~~ accommodated in the first bore portion ~~(16)~~, and said connection sleeve
- having a second sleeve portion ~~(21)~~, insertable into an attachment bore ~~(4)~~ of the carrier tube.

3. The reel~~Reel~~ tine according to claim 1, wherein

~~———characterised in that~~

the connection sleeve ~~(18, 118, 218)~~ has a collar ~~(22)~~ separating the first sleeve portion ~~(20)~~ from the second sleeve portion, said collar ~~(21) and~~ projecting radially ~~therefrom~~from said connection sleeve.

4. The reel~~Reel~~ tine according to claim 1, wherein ~~characterised in that~~ the raking-in portion ~~(10, 110, 210)~~ has on its face facing away from the front contact face ~~(11, 111)~~ at least one reinforcement rib, said at least one reinforcement rib ~~(15, 115, 215),~~ starting from the attachment portion ~~(12, 112, 212)~~ and ending in front of a free end ~~(14, 114, 214)~~ of the raking-in portion ~~(10, 110, 210)~~.

5. The reel ~~Reel~~ tine according to claim 3~~2~~, wherein ~~characterised in that~~ two ribs ~~(215)~~ are provided~~, which~~ starting from the attachment portion and extending~~(210)~~ in a direction towards the free end ~~(214)~~ approaching one another ~~each other~~.

6. The reel~~Reel~~ tine according to ~~one of~~ claim~~s 2 or~~ 3, wherein ~~characterised in that~~ the height of the at least one rib~~(s)~~ ~~(15, 115, 215)~~ decreases in the direction towards the free end ~~(14, 114, 214)~~ of the raking-in portion ~~(10, 110, 210)~~.

7. The reel ~~Reel~~ tine according to claim 1, wherein ~~characterised in that~~ the width of the contact face ~~(11, 111)~~ of the raking-in portion ~~(10, 110, 210)~~ decreases towards the free end ~~(14, 114, 214)~~ of the ~~same~~raking-in portion.

8. The reel ~~Reel~~ tine according to claim 1, wherein the tine ~~characterised in that~~ ~~it~~ is made from an elastic plastic material.

9. The reel ~~Reel~~ tine according to claim 1~~6~~,

wherein~~characterised in that~~ the tine

~~it~~ is made from a polyamide material (PA), a polyoxymethylene material (POM) or a polypropylene material (PP).

10. The reel ~~Reel~~ tine according to claim 1, wherein

~~characterised in that~~

the connection sleeve ~~(18, 118)~~ is made from metal, especially steel, or a tough plastic material.

11. The reel ~~Reel~~ tine according to claim 1, wherein

~~characterised in that~~

the attachment portion has grooves at its two side faces ~~grooves for the~~ accommodati~~on~~ing ~~of~~ the end of a profiled strip.

12. The reel ~~Reel~~ tine according to claim 1, wherein

~~characterised in that~~

a profiled strip ~~(27)~~ is formed on the attachment portion ~~(112)~~ at one of its sides; said profile strip laterally projecting from~~and that~~ the attachment portion ~~(112)~~, said attachment portion has on the other side face facing ~~away from the attachment portion (112)~~ a groove ~~(28)~~ for ~~the~~ accommodati~~on~~ing ~~of~~ the profiled strip ~~(27)~~ of a neighbouring reel tine.